Leadership in evidence based dentistry

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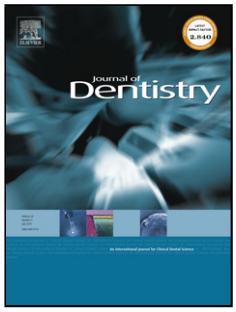

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Leadership in Academic Dentistry
Eds. Nairn H F Wilson, Mahesh Verma and Christopher D Lynch
Part 6

Leadership in evidence based dentistry

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Academic leaders are responsible for a generation of evidence. They must understand research and its synthesis. One of their priorities should be to reduce waste in dental research and improve value by conducting less research, better research and research for the right reasons. This requires the ability to adapt to change, to work collaboratively, as well as having the vision and courage to be innovative when meeting the challenges of improving oral health worldwide in an evidence-based way.

Keywords: Evidence based dentistry, leadership

Evidence Based Dentistry

It is 30 years since the term Evidence Based Dentistry (EBD) was first used and few would have predicted its universal adoption worldwide, across clinical practice, education and policy (1). At the start of the movement in the late1980's healthcare professionals responded with skepticism, not only to its meaning but also its relevance and impact (2). Today there is evidence that approaching dentistry in an evidence-based way is changing what researchers, clinicians and patients do. This includes the commissioning of high-quality research to fill gaps in the evidence base and changes in clinical practice, following the publication of evidence synthesis and the development of guidelines (3-5). Perhaps though, there has not been as much progress or change as was expected.

At the beginning of the EBD movement the solution was to train clinicians to ask questions, search for and appraise evidence. It is no longer possible or realistic for any health professional to keep up to date with the rapidly increasing volume of published primary and secondary research (6). The challenge of implementation is increasingly being recognised and merely providing information is not enough to change clinician or patient behaviour. In addition, the realisation that 85% of medical research spending, perhaps more of dental, goes to waste because the questions are not relevant to clinicians and patients, the study is poorly design, failure to publish promptly or at all, and biased or unusable reports (7). Poor evidence leads to poor clinical decisions. What is required is evidence-based solutions, not further evidence of the problems.

Fulfilment

This will be one of the major challenges for future leaders in EBD. We consider it a privilege to have been involved in EBD since the early days, with the opportunity to meet and learn from great innovators and generous colleagues globally. Contributing to our generation of evidence, both primary and secondary, has provided us with both professional and personal fulfillment. Knowing that we have contributed to changes in research, practice and oral health gives us satisfaction. There is also a real sense of pleasure and purpose in having worked with amazing teams on things that are important and that have made a difference. The impact for us has included academic promotion and the opportunity to create unique roles in dentistry, through which we have helped shape the careers of others.

We believe strongly that our equal and respectful partnership of a clinician and methodologist has contributed to our success, enjoyment and learning. We learnt the value of multidisciplinary working from early in our careers and strongly recommend aspiring leaders to adopt collaboration through seeking out the individuals who do things well. Working in multidisciplinary teams, with people who are motivated around a common goal, is both fun and productive. It requires the ability to relate and interact with different groups across the profession and with the public.

Our careers have been shaped by having courage to take risks and spot opportunities. The research training and mentorship we have had has contributed to our ability to analyse information and make decisions. Those around us have given us confidence to trust our decisions and follow through. To prepare for a leadership role in EBD, seeking training in research and leadership is as important as clinical and analytic skills. Our journey is not unique, but we hope our experience developing Cochrane Oral Health and supporting the implementation of evidence inspires leaders of the future.

You will have to have vision and courage to do things differently to improve population oral health worldwide. Learning the ability to adapt to change and be innovative is important, including harnessing new technologies and working globally with a collective action. A priority will be to reduce waste in dental research and improve value by conducting less research, better research and research for the right reasons (7).

Cochrane Oral Health

The most significant event early on was being involved in establishing and developing Cochrane Oral Health (8,9). The Cochrane Collaboration was founded by Iain Chalmers in 1993 and attracted individuals with energy and vision. Cochrane has transformed into a recognised global brand of quality, fundamentally helping to change the way healthcare decision are made. The leadership of this organisation has been fluid and adaptive to take the organisation from strength to strength. Starting as a collaboration of 77 likeminded researcher enthusiasts in Oxford, it has grown into a unique community of 13,000 members and over 50,000 supporters from more than 130 countries worldwide. The logo tells the story (Fig.1).

The circle formed by two 'C' shapes represents our global collaboration. The lines within illustrate the summary results from an iconic systematic review. Each horizontal line represents the results of one study, while the diamond represents the combined result, our best estimate of whether the treatment is effective or harmful. The diamond sits clearly to the left of the vertical line representing "no difference", therefore the evidence indicates that the treatment is beneficial. We call this representation a "forest plot". This forest plot within our logo illustrates an example of the potential for systematic reviews to improve health care. It shows that corticosteroids given to women who are about to give birth prematurely can save the life of the newborn child.
Despite several trials showing the benefit of corticosteroids, adoption of the treatment among obstetricians was slow. The systematic review was influential in increasing use of this treatment. This simple intervention has probably saved thousands of premature babies.

Cochrane is for anyone interested in using high-quality information to make health decisions. Whether you are a healthcare professional, patient or carer, researcher or funder, Cochrane evidence provides a powerful tool to enhance healthcare knowledge and decision making. The volunteers and contributors are researchers, health professionals, patients, carers, and people passionate about improving health outcomes for everyone, everywhere. Cochrane's global independent network gathers and summarises the best evidence from research to help others make informed choices about treatment, including those for oral health, and we have been doing this for 25 years.

Over the years, the international spread of Cochrane has grown. A measure of impact is that 75% of recent WHO Guidelines have included Cochrane reviews. Expanding multi-language content development and working to increase global access to reviews at the same time as supporting knowledge translations makes Cochrane a creative and productive collaboration. The utility of a Cochrane review is related to the quality and relevance of the evidence or, in the absence of evidence, identifying a gap to inform future research. Unfortunately, it is rare that the evidence in Cochrane Oral Health reviews is judged to be at low risk of bias. Some of our reviews include many trials, but often there is a wide range of interventions with little clinical justification or discussion on the suggested mode of action. This "scatter-gun" approach to interventions and the reporting of multiple outcome measures for the same condition should change.

Feature unique to Cochrane include no commercial or conflicted funding and stricter than most publishers' conflicts of interest guidelines for authors. This is considered vital to generate authoritative and reliable information, working freely, unconstrained by commercial and financial interests and unlike some sources of summarised evidence in oral healthcare. A consequence of this is the need for a sustainable funding model that supports important reviews to be completed in a timely way and of high quality.

Cochrane Oral Health receives core funding from the NIHR UK. It is one of 52 review groups and a member of the Musculoskeletal, Oral, Skin and Sensory (MOSS) Network - one of eight new Networks of review groups formed to ensure and increase the quality of reviews. Cochrane Oral Health produces high-quality priority/relevant systematic reviews in the area of prevention, diagnosis, treatment and rehabilitation of oral, dental and craniofacial diseases and disorders. We have one of the largest and most complex review group remits and actively disseminate and facilitate pathways to implementation globally, including through social media. Cochrane Oral Health activities are coordinated by its editorial base, located within the Division of Dentistry, School of Medical Sciences, the University of Manchester, United Kingdom. The review groups conduct systematic reviews within prioritised topic areas and are part of a supportive community that includes 17 methods groups, 11 thematic fields, 20 centres with 34 associate centres and affiliates in 44 countries. Members of the editorial team of Cochrane Oral Health are actively involved in the methods groups, responsible for the development of the latest and robust techniques for evidence synthesis.

Development

The outcome of a strategic review of Cochrane in 2008 was *Strategy to 2020* which aims to put Cochrane evidence at the heart of health decision-making all over the world. An advantage for oral health of being part of this massive international collaboration has been collective learning and support. Cochrane Oral Health, like all other groups, supports the four key strategic goals: producing evidence, making evidence accessible, advocating for evidence and building an effective sustainable organisation.

Since the start of Cochrane Oral Health in 1996 much has changed both in the conduct of reviews and the expectation of authors and users. EBD is the application of evidence not just the acquisition of knowledge. The need for high quality research and summaries of evidence that can be easily incorporated into knowledge tools and products such as guidelines is global. The amount of waste in medical research shocked the profession over a decade ago. Perhaps it is not surprising that the estimate of research waste in dentistry is greater than that in medicine. The most important questions for oral health need to be identified and sufficient resource made available for high quality research and synthesis. In the UK national commissioned research has been informed by gaps identified by Cochrane Reviews. A query or criticism of the resulting dental trials is the global generalisability of results, because they have been conducted in within the UK National Health Service. We need to be realistic and pragmatic to develop a global perspective and appreciation of the relevance of interventions across healthcare systems. For example, it is unlikely that a scale and polish in the UK is different to periodontal instrumentation and prophylaxis in the US.

Issues

We consider that the work of Cochrane remains important despite the exponential increase in the number of systematic reviews published. Unfortunately, many of these reviews are near replicas of others, therefore

unnecessary, or of poor quality therefore meaningless, and both are time consuming for guideline groups to appraise. Research should be conducted for the right reason. Much is conducted and published to achieve postgraduate qualifications and academic promotion. A positive consequence of the multiple systematic reviews may be less poor-quality primary research that wastes the time of both researchers and participants. An increase in the appreciation and experience of evidence synthesis is important to take EBD forward, but perhaps a clearer distinction in review quality is needed. The role of journal editors is also important to ensure the highest quality reporting, but currently many dental journals do not endorse the use of reporting guidelines (10).

Global Alliance

A criticism of Cochrane is the time taken to publication, but consistently these reviews are ranked of the highest quality. The difference is that Cochrane is not just a journal; it is an organisation that provides support to authors both methodologically and editorially. To continue to support developments in oral health efficiently, we need to work differently and better together. Cochrane is part of an ecosystem that includes evidence producers and knowledge tool developers. To help ensure the quality and timeliness of Cochrane reviews we founded the Global Alliance (GA) in 2010. The GA partners represent clinicians across a broad spectrum of dental specialities, requiring access to the best available evidence for delivering the highest standards of clinical care and achieving patient-important outcomes. We undertook an international prioritisation of reviews with GA partners and over the years the top 80 reviews, in all specialist areas of dentistry, have either been completed or updated. Reducing the quantity of priority reviews is necessary to ensure quality and timely production. The complexity of review methods is increasing, therefore focusing on important reviews is the best use of limited resource. Priority reviews include those needed by international guideline developers. In recent years Cochrane Oral Health has worked closely with guideline producers in Scotland, America and WHO.

This experience has made us increasingly aware that to take EBD to another level, we needed to do things differently and become partners with a wider collaboration. Dentistry could consider adoption or adaption of the EBM manifesto for better health since many of the issues are transferable. Producing the reviews is possibly the easy part, identifying and incorporating the emerging evidence and supporting implementation requires a different type of working. We decided to explore following a conceptual framework initially developed in 2013 for dynamic healthcare evidence ecosystems. Cochrane Oral Health in 2018 worked with the MAGIC team to develop this concept for application specifically in oral health.

Global Evidence Ecosystem

The Global Evidence Ecosystem for Oral Health (GEEOH) is a joint vision lead by Cochrane to create co-ordinated efficient responses for incorporating new evidence by expanding our engagement to include evidence producers, other oral health evidence synthesisers and guideline development groups. Establishing the GEEOH broadens GA partners' contributions from

focusing upon sustainable evidence production towards a transformational model of evidence development.

The GEEOH collectively aims to produce trustworthy evidence that is globally adaptable to the needs of our end-users by coordinating common methodological standards, using digitally-structured data platforms and establishing a culture of sharing and innovation. The GEEOH offers an exemplary opportunity to reduce research waste, avoid duplication of effort, and close the loop between new evidence and improved care by involving international organisations with responsibility and contributions at different stages of the ecosystem.

We are just starting on this journey presenting the concept and vision to relevant groups. The case studies from the American Dental Association and Scottish Dental Clinical Effectiveness guideline groups give an indication of the potential. We will be asking international groups and organisations to join us and in this development phase there will be much to learn by sharing experiences.

Scotland

NHS Education for Scotland's Clinical Effectiveness workstream for dentistry comprises four programmes of activity which support healthcare professionals adopt and apply up-to-date knowledge and skills, facilitate the delivery of safe, effective and evidence-based patient care and promote quality improvement in practice.

Within the Clinical Effectiveness workstream, the Scottish Dental Clinical Effectiveness Programme (SDCEP) has a national remit for the development and publication of user-friendly, evidence-based guidance on topics identified as priorities for oral healthcare in Scotland (4). Through its guidance, SDCEP supports dental teams throughout Scotland, and increasingly beyond, to provide high quality healthcare that is safe, effective and person-centred. In 2016, the process used by SDCEP to develop guidance was accredited by the National Institute for Health and Care Excellence, which is an indicator of its rigour, reliability and high quality.

SDCEP guidance comprises key recommendations, clinical practice advice and supporting tools to facilitate its implementation and informs the development of a wide range of educational initiatives. Dependent on the guidance topic, it is provided in a variety of formats including print, online, and web or smartphone apps. In recent years, SDCEP has also provided implementation advice in which a rigorous methodology is used to interpret and clarify changes in legislation, professional regulations or other developments relevant to patient care. The aim is to provide practical advice to help dental teams implement any necessary changes to practice and all guidance is freely available at SDCEP.org

Scientific and professional support for the implementation of SDCEP guidance is provided by the Translation Research in a Dental Setting (TRiaDS) Programme (5). TRiaDS is a multi-disciplinary research collaboration, jointly led by NES and the Health Services Research Unit, University of Aberdeen that has developed a programme of implementation science research embedded within SDCEP's guidance development process. The collaboration includes implementation science experts from across the UK, Canada and Germany and healthcare professionals from dentistry, pharmacy and optometry.

The TRiaDS framework for the evaluation and implementation of SDCEP guidance employs a theoretically informed process that is underpinned by the Theoretical Domains Framework (11) and the COM-B model (12). This framework enables measurement of current practice, identification of any evidence-practice gaps, exploration of the barriers and facilitators to change and guides the development and delivery of interventions to better support implementation of SDCEP guidance recommendations.

SDCEP and TRiaDS work in close partnership with the Quality Improvement in Practice Training Team (QIiPT). QIiPT holds a national remit to support implementation of Scottish Government policies and SDCEP guidance through the delivery of education and in-practice training to all NHS dental teams in Scotland on a range of national priorities for quality improvement in dentistry, including infection control, decontamination and antibiotic prescribing. The content and delivery of QIiPT education and training is informed by behavioural and belief data gathered during the SDCEP guidance development process and, where possible, its impact is evaluated through national randomised controlled trials. QIiPT's responsibilities also include supporting the development of QI capacity and capability across all members of the primary care dental team through piloting QI tools and methodology in training practices across Scotland.

All research requirements arising from SDCEP, TRiaDS and QIiPT activities are supported by the Scottish Dental Practice Based Research Network (SDPBRN) (13). SDPBRN is a network of NHS primary care dentists in Scotland who are interested in conducting research to inform and encourage evidence-based dental primary care practice. The core network comprises a pool of approximately 50 dentists who can be called upon to take part in a variety of research studies to produce and deliver evidence which is based on real practice experience and informed by the people providing actual care.

The experience of the Clinical Effectiveness workstream's complementary programmes of activity work together to generate and synthesise research evidence, make national guidance recommendations and support their implementation. Together the programmes also support the development and

implementation of specific Scottish Government quality assurance and QI initiatives using robust methodologies for evaluation and implementation.

Future leaders

We believe that a foundation for the future is to work collaboratively in an ecosystem with collective action to reduce waste in dental research and improve value by conducting less research, better research and research for the right reasons. The EBD community should take responsibility to work differently together to improve healthcare using better quality evidence. Discussions are starting to taking place led by a disparate group of individuals from around the world from a range of organisations. Development of a Global Evidence Ecosystem for Oral Health, which aims to improve the efficiency of developing and implementing oral healthcare recommendations worldwide could provide solutions to some of the challenges facing the future of EBD.

Leaders of the future have choices to make in where they focus their careers, but we firmly believe that whatever direction that is, the skills and confidence to make evidence-based decisions will be of value. For those who want to help shape its future, make yourselves known and get involved.

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Fig.1 The Cochrane Collaboration logo